Original Research Article

Health Risk Implication among Solid Waste Workers in Obio Akpor Local Government Area of Rivers State.

ABSTRACT

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The aim of the study was to examine the Health Risk implication among solid waste workers in Obio Akpor LGA of Rivers state. The study was carried out at the Rivers State Waste Management Agency in Obio-Akpor Local government area of Rivers State between January 2019-March 2019. The survey method was employed and the simple random technique was adopted whilst 265 copies of the questionnaire were used to elicit information from the number of employee. The result finding showed that the major health implication that was identified was Typhoid, malaria, Diarrhea and other form of disease, this was as a result that respondents had a pre requisite knowledge of the effect of poor waste management to human health Furthermore it was revealed from the findings that the major source of solid waste is from the residential area and plastics are a major composition of the solid waste. It was discovered that majority of the individuals in Obio akpor local government area prefer to dump their waste at authorized dump site and this is normally done within 1-5days and this is done daily. it was concluded that solid waste workers should be provided with vaccination programs on typhoid and malaria , pre-employment and periodic health surveillance in order to detect early signs of disease and monitor their ability to work

Keywords: Health and solid waste

1. INTRODUCTION

Solid waste comprises of different type of discarded goods mainly left-over food, textile, glass, paper, metals and other spoiled goods [1].The process of generation, storage, collection, transportation and final disposal of waste are important process which most times involves the use of human labour in many developing country including Nigeria [2].

It is also of importance to note that waste management contributes tremendously in upholding public health by reducing the risk of diseases, however the job exposes those who are involved and are known as solid waste workers to high risk of fatal and non-fatal occupation accidents [3] .

However, in the early days, the population of humans were small and there were relatively no adverse health effects of waste considering the large land mass. People migrated from one location to another, so there was tendency to relocate from previous waste dump site to new environment. Thus, waste was disposed of without the fear of its consequences to the environment and of any serious health risk to people [5].

As man increased on the surface of the earth, as well as the onset of civilization, the quality and quantity of waste production also changed and increased. The advent of industrialization has altered the nature and quantity of waste generated on a higher level. The increasing complicated arena of waste handling harbours significant potential for human health and safety risks. [6] Contend that workers not properly and adequately managed may cause some health and environmental risk which may result in sickness, impaired health and well-being or significant discomfort among people [9].

Despite the significance of this job done by the waste workers, they are exposed to several kinds of hazards in the cause of discharging their duties. Major hazards faced by solid waste workers can be chemical, biological, agronomic, physiological hazard.

Amongst the injuries experienced by theses solid waste workers are accidental injuries such perforation wounds, laceration, burns, dog and rat bites which are deep cuts caused by scrap metals, jagged edges of cans and bins, glass cutters or nails in waste bag and when they drop heavy containers on their feet or legs [7]

In developing countries example Nigeria , waste segregation is rarely practised, that is why traces of medical waste and poisonous industrial wastes are mixed with the domestic waste stream [8].Furthermore nothing has really be done about the health and safety of these solid waste workers. The aim of solid waste workers is to remove garbage to safeguard public health and welfare as well as prevent environmental pollution.

It is against this background that the aim of this research was to examine the Health Risk Implication among solid waste workers in Obio Akpor Local government area of Rivers State.

2. METHODOLOGY

The population of the study consisted of staff of the Rivers state waste management agency (RIWAMA). For the purpose of the study the simple random sampling technique was adopted . This technique helped in giving a number to each subject or individual from the open populace putting the numbers in a compartment and picking them randomly. It gave every unit of the population an equal and known chance of being chosen in the sample and it has to do with a definite number of population. Furthermore sampled respondents were given structured questionnaires.

The questionnaires were self-administered randomly to selected sample respondents of RIWAMA. The data retrieved from the questionnaire was put together using the statistical package for social sciences (SPSS). For the purpose of a clear and detailed representation of data, the uses of tables were employed in order to present the gathered data for the research study. Descriptive analysis was used which consists of the Mean, Median mode of analyzing

3. RESULTS AND DISCUSSION

3.1: Demographic Characteristics of Sampled Population

Table 1: Distribution of Solid waste handlers at RIWAMA according to their job task

Job Task	Number of employees	
	(N=265)	(%)
Street sweepers	79	30
Waste Pickers	73	28
Refuse Collector	67	25
Truck Drivers	46	17
Total	265	100

Source: [8]

Table 1 above shows the distribution of Solid waste handlers at RIWAMA according to their job task. It reveals that majority of the respondents under survey 30% (79) were street sweepers, 28% (73) were waste pickers, 25% (67) were refuse collector and the least 17% (46) are truck drivers. The

implication of this result is that majority of the respondents have an overview of the issue discussed based on their experience in the handling of solid waste in course of their job description

3.2 Sources and composition of solid waste in Obio Akpor LGA

To examine the source and composition of solid waste in Obio Akpor LGA two category of questions were asked, they included what are the source of Solid waste and what are the type of Solid waste

Sources of Solid Waste

Table 2 Sources and Types of Solid Waste (n=265)

- **Multiple Responses**

*Items	Freq.	%
Residential	178	67
Industrial	87	33
Institutional	78	29
Commercial	67	25
Others	65	25

Source: [8]

Table 2 above shows the sources of solid waste as indicated by the respondents. Data Analysis based on multiple response revealed that majority of the respondents had their opinion that the major source of solid waste is from residential buildings, 33% (87) respondents had opinion that the source was from industrial, 29%(78) had opinion that the source was from institutional while 25% (67) and 25% (65) respondents had opinion that the major source of solid waste was from commercial and other sources not mentioned respectively.

Types of Solid Waste

Table 3: Types of Solid Waste (n=265)

Item	Freq.	%
Plastic	187	71
Metal	95	36
Food Waste	87	33
Sanitary	77	29
Glass	76	29
Hazardous Waste	66	25
Paper	45	17
Ashes	33	12
Animal Waste	24	9
Debris	22	9

Source:[8]

- Multiple Response

On the type of solid waste, data analysis as seen in table 3 revealed that 36% (95) of the respondents indication that metal was part of the composition of the solid waste they handle, 33% (87) respondents indicated food waste, 29% (77) indicated sanitary waste, 25% (66) respondents indicated hazardous waste , 12% (33) respondents indicated ashes, 17% (45) indicated paper 29% (76) respondents indicated glasses and majority 71% (187) indicated plastic as major composition of solid waste.

3.3 Waste Disposal Method in Obio Akpor LGA

To identify the waste disposal method three categories of questions were asked, they included the waste disposal method, how long it takes to dispose waste and how often do they dispose waste.

Waste Disposal Method

Table 4: Waste disposal Method

Item	Freq.	%
Authorized dump site	164	62
Unauthorized empty plot	34	13
Personal Bin	29	11
RIWAMA	23	9
Burning	15	6

Total	265	100

Source: [8]

Table 4 shows the waste disposal method adopted by residents. Data analysis reveals that majority of the respondents 62% (164) indicated that residents use authorized dump site to dispose their waste, 13% (34) respondents indicated that residents use unauthorised empty plot so as to dispose their waste, 11% (29) of the respondent indicated that most residents use their personal bin , 6% (15) of the respondents indicated that most residents prefer burning and 9% (25) use RIWAMA as a source of dumping their waste

How long does it takes to dispose waste

Table 5: Duration of Waste Disposal

Items	Freq.	%
1-5 days	198	75
6-10 days	23	9
11-15 days	44	16
>15 days	-	-
Total	265	100

Source: [8]

On how long it takes residents to dispose their waste, majority of the respondents said most residents normally dispose their waste within 1-5 day, 16% (44) of the respondents indicated that most residents dispose their waste within 11-15days while 9% (23) of the respondents dispose their waste within 6-10days

Frequency of Waste Disposal

Table 6: Frequency of Waste Disposal

Items	Freq.	%
Once a week	103	38
Daily	95	36
Twice a week	67	25
Total	265	100

Source: [8]

On how often they do dispose their waste, majority of the respondents indicated that majority 38% (103) indicated that residents dispose their waste once a week, 36%(95) respondents indicated that residents dispose their waste daily and 25% (67) indicated that residents dispose their waste twice a week

3.4 Major health risk affecting solid waste solid waste workers in Obio Akpor LGA

To identify the major health risk affecting solid waste workers in Obio Akpor LGA two categories of questions were asked, they included if poor waste disposal are harmful to human health and its health implication.

If Poor Waste disposal are harmful to Human Health

Data analysis as seen in Table 7 reveals that all the respondents were conscious of the fact poor waste disposal is harmful to human health.

Table 7 Harmful consequences of poor waste disposal to human Health

Item	Freq.	%
Yes	265	100
No	-	-
I don't know	-	-
Total	265	100

Source: [8]

- Multiple Response

Health Implication

Table 8: Health Implication

Item	Freq.	%
Typhoid	178	67
Others	178	67
Malaria	143	54
Diarrhoea	109	41
Painful joint	67	25
Acute Back pain	56	21
Possible Liver and Kidney	23	9

Source: [8]

- Multiple Response

Table 8 shows respondents opinion on the health implication of poor waste disposal, 67% (178) of respondents indicated that when waste are not properly handled it could make them vulnerable to typhoid, 54% (143) respondents had opinion that they could be vulnerable malaria, 41% (109) respondents had opinion that they could be vulnerable to Diarrhoea, 25 % (67) respondents had opinion they could be expose to experiencing painful joints, 21% (56) respondents had opinion that they could be exposed to experiencing acute back pain, 9% (23) had opinion that they could experience a possible liver and kidney damage and 67% (178) respondents had opinion that they could experience other symptoms not mentioned

4. CONCLUSION

This study assessed the Health implication among solid waste workers so as to draw up a conclusion on the Health Risk Implication among solid waste workers in Obio Akpor Local government area of Rivers State. On the waste disposal method data analysis revealed by respondents that majority of the individuals in Obio akpor local government area prefer to dump their waste at authorized dump site, also it was discovered that it takes 1-5days for majority of the individuals to dispose their waste and this occurs daily while on the major health risk affecting solid waste workers in Obio Akpor Local government area it was concluded that majority of the respondents understudy had a pre requisite knowledge on the effect of poor waste disposal to human health likewise the health implication of such action as majority indicated that they will be prone to typhoid and other forms of diseases.Finally it was concluded that solid waste workers should be provided with vaccination programs on typhoid and malaria,, pre-employment and periodic health surveillance in order to detect early signs of disease and monitor their ability to work

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COMPETING INTERESTS

Authors have declared that no competing interest exist

ETHICAL APPROVAL

Approval for this study was obtained from the Department of geography and Environmental Management, University of Port Harcourt Choba. Also, verbal informed consent was obtained from each respondent. All the participants were informed that the study is voluntary and that they could opt out of the study at any time. Also participants were assured that confidentiality would be maintained during and after data collection and that information given will be used for research purposes only. And lastly articles and authors used were sighted accordingly in this research

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